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T070639

<b>1. Location of Reading Room:</b> Idaho Operations Public Reading Room 1776 Science Center Dr. University Place Idaho Falls, ID 83403		<b>2. Expected Release Date:</b>  May 22, 1995
<b>3. Document Type:</b> <div style="display: flex; justify-content: space-between;"><div style="width: 45%;"><input type="checkbox"/> Letter <input type="checkbox"/> Memorandum <input type="checkbox"/> Report <input type="checkbox"/> Publication <input checked="" type="checkbox"/> Other (Specify) FUTURE CERTLE PROJECTS</div><div style="width: 50%;"><b>a. If letter or memo:</b> To: From:  <b>b. If report:</b> Title:</div></div>		
<b>4. Document Date:</b> None	<b>c. If publication:</b> Name: Volume: Issue:	
<b>5. Summary (2-3 lines indicating the major subject(s) of the document):</b> Description of planned Controlled Environmental Radioiodine Test Laboratory Experiment (CERTLE).		
<b>6. Name and telephone number of person completing form:</b>  Thomas L. Baccus (208) 525-0696	<b>7. Organization:</b>  Lockheed Idaho Technologies Co.	<b>8. Date:</b>  May, 1995

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## HUMAN RADIATION EXPERIMENTS

## RECORDS PROVENANCE FORM

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ADDITIONAL LOCATION INFORMATION	CFA-690, RESL, ROOM #103 FOLDER: NONE
FILE TITLE	FUTURE CERTLE PROJECTS (DRAFT JEcho)
TOTAL PAGES	
BATE NUMBER RANGE	
DOCUMENT NUMBER RANGE	

HEI FORM DOCUMENT NO.: T070246

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DOCUMENT TITLE: FUTURE CERTLE PROJECTS (DRAFT JEcho)

CROSS REFERENCES:

ITEMS OF INTEREST:

1. Penetration of the MSA 85851 with  $\text{CH}_3^{131}\text{I}$ : The MSA 85851 charcoal is the type recommended by ORNL for collecting  $\text{CH}_3\text{I}$ . It is a coconut shell iodine impregnated charcoal in Hi-Vol adapted canisters. The experiment will have three in a series for a penetration tests. There will be a May Pack with one of these and two standard Hi-Vols. Probable 3 or 4  $\mu\text{Ci}$  will be presented to the 3 packs for an absolute efficiency tests also.
2. Comparison of iodine impregnated charcoal with regular MSA charcoal: ~~TGW~~ May Packs with MSA 85851 and two with MSA 66740 will be tested with  $\text{CH}_3^{131}\text{I}$  to firm up this comparison ratio in case regular charcoal has to be used to <sup>a</sup>trap methyl iodide. Tests may be run ~~tqw~~ or three times, if necessary to get good numbers.
3. Deposition variation on charcoal and silver fallout plates with changes in wind speed: A factor of two increase was found on silvered screen fallout plates over that on standard charcoal plates. This will be further tested on a 4 by 4 array using elemental iodine-131 aerosol<sup>o</sup>. This experiment will be run at three wind speeds V, 2V and 4V; or a double doublet. Markee will then use the data to test the function  $R=R_a+R_b+R_s$ , which pertains to calculations in the CERT Program.
4. Halflife of  $\text{CH}_3^{131}\text{I}$  on pasture grass: Nine flats of freshly growing pasture grass will be exposed to about 20  $\mu\text{Ci}$  of methyl iodide-131. Four will be 1/3 clipped and counted. Five will be used as a decaying source for the recording GM. The second and third 1/3 clip will be taken at two day intervals. An effective halflife curve will be plotted from the data. In the event that methyl iodide contamination has a particularly short  $T_{1/2E}$ , sampling on the CERT  $\text{CH}_3\text{I}$  pasture might need to be modified.

5. Photolytic decomposition of  $\text{CH}_3^{131}\text{I}$ .

REPOSITORY

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FUTURE CERT  
DRAFT  
PROJECTS (JECHO)

The evaporating gas from a  $\text{CH}_3^{131}\text{I}$  source will be split into two fractions. One will be sampled immediately by ~~MM~~ Hi-Vol May Pack. The other will be liberated into the CERTLE chamber and exposed to ultra violet light for several minutes. It will then be sampled with a similar May Pack and the  $\text{CH}_3\text{I}/\text{I}_2$  ratios compared. If considerable difference is found, a more sophisticated experiment will be designed. It will also be possible to extend the transit time in the chamber to allow some aging of the material if necessary.

7. Thermal decomposition of  $\text{CH}_3^{131}\text{I}$ : The source stream of methyl iodide-131 will be split and sampled by Hi-Vol May Pack for initial  $\text{CH}_3\text{I}/\text{I}_2$  ratio. The test stream will be run through a tube heated to  $85^\circ\text{C}$  for several minutes and then sampled by a similar May Pack. If further testing is indicated by considerable variation then a more sophisticated experiment will be designed.